BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

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File Number: T 14/92 - 3.2.1

Application No.: 89 300 119.8

Publication No.: 0 328 233

Title of invention: Protection method and apparatus

Classification: F16L 59/14

D E C I S I O N
of 14 June 1993

Applicant: Brown, Colin

Headword:

EPC Article 56

Keyword: "Inventive step (yes)"

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number : T 14/92 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 14 June 1993

Appellant : Brown, Colin
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Decision under appeal : Decision of the Examining Division 2.3.11.118 of the European Patent Office dated 5 August 1991 refusing European patent application No. 89 300 119.8 pursuant to Article 97(1) EPC.

Composition of the Board :

Chairman : F. Gumbel
Members : S. Crane
J-C. de Preter

Summary of Facts and Submissions

I. European patent application No. 89 300 119.8 was refused by a decision of the Examining Division dated 5 August 1991.

II. The reason given for the decision was that the subject-matter of the independent claims lacked inventive step with respect to the state of the art as disclosed in the following documents:

US-A-4 529 009 (D1)
US-A-4 686 755 (D2).

III. A Notice of Appeal against this decision was filed on 16 September 1991 the appeal fee having been received four days earlier. The Statement of Grounds of Appeal was filed on 6 December 1991.

IV. In response to communications of the Board pursuant to Article 110(2) EPC dated 11 November 1992 and 7 January 1993 the Appellant filed, with a letter dated 1 March 1993, a new set of Claims 1 to 16 and revised pages 2 to 7 and 14 of the description on the basis of which, together with pages 1, 8 to 13 and 15 to 19 of the original description and sheets 1/4 to 4/4 of the original drawings, he requested the grant of a patent.

Claim 1 reads as follows:

"A method for making a python by inserting a bundle of tubes (11) into an elongate foam sheath (13) and increasing the length of sheath which may be applied in a single operation by expanding the sheath during insertion of the bundle of tubes by applying a partial vacuum to the exterior of the sheath, characterised in that a length of

foam sheath (13) is placed in a sealable chamber (15) and a differential pressure between the inside and outside of the sheath (13) is applied by evacuating the chamber (15) through a vacuum connection (26) to the chamber (15) so as to expand the inner diameter of the sheath (13), the bundle of tubes (11) is introduced into the sheath (13) at one end of the chamber (15), and passed through the expanded sheath to emerge from the other end of the chamber (15), and the differential pressure is then removed so that the said inner diameter resiles back to grip the bundle (11), in which the sealable chamber (15) comprises an elongate box (16) with an elongate lid (17) extending along the length of the box (16) and movable into an open position to allow the foam sheath (13) to be placed in the box (16)."

Dependent Claims 2 to 7 relate to preferred embodiments of the method according to Claim 1.

Independent Claim 8 is worded as follows:

"Apparatus for making a python by inserting a bundle of tubes (11) into an elongate foam sheath (13) and increasing the length of sheath which may be applied in a single operation by expanding the sheath during insertion of the bundle of tubes (11) by applying a partial vacuum to the exterior of the sheath (13), characterised by comprising a sealable chamber (15) in the form of an elongate box (16) with an elongate lid (17) extending along the length of the box (16) and movable into an open position to allow the foam sheath (13) to be placed in the box (16) and means for evacuating the chamber (15) so as to expand the inner diameter of the sheath (13)."

Dependent Claims 9 to 16 relate to preferred embodiments of the apparatus according to Claim 8.

V. Minor amendments to pages 4, 8, 9, 13, 14, 15, 16 and 18 of the description, Claims 1, 2 and 6 and sheets 3/4 and 4/4 of the drawings were agreed by the Appellants in a telephone conversation with the Rapporteur of the Board on 14 June 1993 (see minutes).

Reasons for the Decision

1. The appeal complies with the requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC. It is therefore admissible.

2. Allowability of the amended documents

Present Claim 1 corresponds in essence to a combination of the features of original Claims 1, 3, 4 (in part), and 5 (in part). Claim 8 corresponds in essence to a combination of the features of original Claims 11 to 13 (in part) and, again, Claim 5 (in part). All of the dependent Claims 2 to 7 and 9 to 16 have an adequate counterpart in the claims or description of the original application. The amendments made to the description do not go beyond what was necessary to adapt this to the terms of the claims and to evaluate the most relevant state of the art.

There are accordingly no objections to the amended documents under Article 123(2) EPC.

3. State of the art

3.1 Document D1 relates to a multiple core hose comprising an assembly of flexible primary hoses, each having a fluid passage and being formed on the outside with longitudinally extending recesses for receiving a

plurality of secondary hoses, the assembly being surrounded by a flexible foam insulating sheath. The sheath may be applied by extrusion around the assembly of the primary and secondary hoses or the sheath may be slid over this assembly in appropriate lengths, with the ends of adjacent lengths overlapping each other. To increase the length of the sheath which may be applied in a single operation, the sheath may be expanded during insertion of the hose assembly, for example by applying a partial vacuum to the exterior of the sheath. The multiple core hose is particularly useful for conveying beverages from a cooled storage vessel to a dispensing point, the primary hoses being connected to a cooling liquid circulation system for maintaining the desired temperature of the beverages carried in the secondary hoses.

3.2 Document D2, cited by a third party under Article 115 in the course of the examination proceedings, discloses a method for covering an elongate body with a relatively thick coating of elastic material, in particular rubber. The coating is placed in a tubular chamber, against which its ends are sealed, and then inflated by compressed air up to the diameter of the chamber. An air vent in the wall of the chamber allows the air trapped between the coating and the wall of the chamber to escape. After inflation of the coating this air vent is closed, the coating thereby being held in its expanded state even after the source of compressed air is removed. The elongate body is then inserted into the coating and the air vent opened to allow the coating to collapse elastically onto the body.

3.3 EP-A-145 831 (D3), also cited by the third party, discloses a method of cladding a metal tube with a sheath of foamed insulation material. The sheath is clamped at one end to the outside of a bushing which is a close sliding fit around the metal tube, the leading end of

which is plugged, and is connected at the other end to a source of compressed air. After inflation of the sheath the tube can be slid through the bushing into it.

3.4 The remaining documents cited in the Search Report or by the third party are less relevant than those evaluated above and need not be considered further.

4. Novelty

The method of Claim 1 and the apparatus of Claim 8 are distinguished from the closest state of the art according to document D1 by the features specified in the respective characterising clauses of the claims. The same and other distinctions exist in respect of documents D2 and D3. The subject-matter of the independent Claims 1 and 8 is therefore novel.

5. Inventive step

In the light of the state of the art according to document D1 the technical problem to be solved is the development of a method and apparatus for enabling a long length of the bundle of tubes to be inserted into a corresponding length of foam sheath in a simple and efficient manner.

According to the invention this problem is solved in essence in that the foam sheath is placed in a sealable chamber to which vacuum can be applied, the chamber taking the particular form of an elongate box with an elongate lid extending along the length of the box. This form of the chamber thereby allows a long length of foam sheath, for example 25 metres, to be laid into the chamber in a simple single operation. Furthermore this form of the chamber enables the sealing between the chamber and the foam sheath to be accomplished in a simple fashion, such

as by providing suitable seal members at the ends of the elongate box and elongate lid which engage the foam sheath as the lid is closed.

There is nothing in the available state of the art that could suggest to the skilled man that the use of a chamber of the form discussed above could be appropriate for putting into practical effect the very general teaching of document D1 that one possibility for increasing the length of sheath that can be applied in a single operation is by applying a partial vacuum to the exterior of the sheath, document D1 itself containing no indication whatsoever of any technical means suitable for doing this.

Documents D2 and D3 also relate to the general technical problem of the insertion of an elongate member into an elastic sheath, both of them making the proposal to inflate the sheath. It is true that according to document D2 the previously inflated sheath is subsequently held in its expanded state by virtue of a sealed chamber which surrounds it, this sealed chamber therefore being to that extent analogous to the one used according to the claimed invention. However, as proposed in document D2, the chamber is in the form of a steel pipe into which the sheath has to be inserted from one end and in no way comparable to the elongate lidded box proposed in the contested patent.

Accordingly the Board has come to the conclusion that the subject-matter defined in independent Claims 1 and 8 cannot be derived in an obvious manner from the available state of the art and consequently is to be considered as involving an inventive step (Article 56 EPC). These claims, together with their dependent Claims 2 to 7 and 9 to 16 and the amended description therefore form a suitable basis for the grant of a patent.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to grant a patent on the basis of the application documents specified in the first paragraph of Section IV above, with the amendments as agreed by telephone on 14 June 1993 as indicated in section V above.

The Registrar: The Chairman:

S. Fabiani F. Gumbel